Mad Scientist 2018
Bio Convergence & Soldier 2050

Agenda Day 1: Thursday, March 8, 2018

Livestreaming at: www.tradoc.army.mil/watch

All Times are Pacific Standard Time (PST)

0800-0840 Registration

0840-0850 **Admin Remarks,** *Mr. Lee Grubbs, Director, Mad Scientist Initiative, G-2, U.S. Army Training and Doctrine Command (TRADOC)*

0850-0910 **Welcoming Remarks,** *Dr. William A. Jeffrey, CEO, SRI International*

Morning Theme: Convergence of Bio with OE Attributes

0910-0930 **Opening Remarks,** *Mr. Peter Kant, Vice President, Federal Partnerships, SRI International*

0930-0950 **Opening Remarks,** *Mr. Brynt Parmeter, Civilian Aide to the Secretary of the Army for California (Silicon Valley)*

0950-1015 Break

1015-1100 **Managing and Mining Complexity in Biology**
Dr. Greg Kovacs, President, SRI Biosciences, SRI International

1100-1130 **Human 2.0**
Dr. Amy Kruse, Chief Scientific Officer, The Platypus Institute, Arlington, VA

1130-1300 Lunch + Demonstration Site (provided on site)

Afternoon Theme: Human Enhancement

1300-1330 **Superhuman Intelligence & Human Creativity (Not Live Streamed)**
Dr. Seth Putterman, Professor of Physics and Astronomy, University of California, Los Angeles

1330-1400 **Future Fight on the Ground: Why We Need Human Enhancement to Win**
Mr. Andrew Herr, CEO, Helicase

1400-1430 **The DNA Utility in Military Environments**
Ms. Stephanie Larson and Ms. Zarah Ahmad, Air Force Research Laboratory (AFRL)

1430-1445 Break

1445-1515 **Enhanced Reasoning through Targeted Neurostimulation**
Dr. Mike Miller, University of California Santa Barbara, Psychological & Brain Sciences

1515-1545 **Engineering Resilience against Bio Weapon Threats**
Mr. Kettner Griswold, Hertz-Draper Research Fellow, George Church Lab & Edward Boyden Lab, Harvard University

1545-1615 **Implications of Higher Intelligence for Human Conflict**
Dr. David Brin, Science Fiction Author/Futurist

1615-1630 **Closing Remarks,** *Dr. Philip Perconti, Director, Army Research Laboratory (ARL)*

1700-2000 *No Host Social (directly after conference)*

Mad Scientist 2018
Bio Convergence & Soldier 2050
Agenda Day 2: Friday, March 9 2018

Livestreaming at: www.tradoc.army.mil/watch

All Times are PST

0845-0900 **Welcome Remarks,** *Brigadier General David P. Komar, Director, Capabilities Developments Directorate, Army Capabilities Integration Center*

Day 2 Theme: Democratization of Bio Improvements

0900-0930 **Call for Ideas Winner: The Future ODA 2035-2050**
Mr. Howard Simkin, United States Army Special Operations Command G-9

0930-1000 **Advances in Biotechnology: Evolving the Security Landscape?**
Dr. Megan Palmer, Center for International Security and Cooperation (CISAC), Stanford University

1000-1015 Break

1015-1045 **PLA Human-Machine Integration**
Ms. Elsa Kania, Adjunct Fellow, Center for New American Security (CNAS), Washington, D.C.

1045-1145 **U.S. Army Scientists Panel, the Direction of Technology**
COL Wendy Sammons-Jackson, Ph.D., MEDCOM USAMRMC
Dr. Elizabeth Mezzacappa, RDECOM ARDEC
Dr. Tien Pham, RDECOM ARL

1145-1215 **Warfighter Enhancement (Not Live Streamed)**
Dr. Tim Broderick, Senior Advisor, SRI Biosciences, SRI International

1215-1330 Lunch (provided on site) *Optional Working Lunch - Invitation only*

1330-1400 **Wearables, Big Data, and Health**
Dr. Michael Snyder, Director, Center for Genomics and Personalized Medicine, Stanford University

1400-1430 **Flexible Sensors and Diagnostics: The Revolution in Wearable and Embeddable Technologies**
Mr. Jason Marsh, Director of Technology, NextFlex

1430-1500 **Future Legal and Ethical Implications of Bio Technology**
Mr. Hank Greely, Deane F. and Kate Edelman Johnson Professor of Law and Professor, by courtesy, of Genetics, Stanford University

1500-1530 **Closing Remarks,** *Mr. Thomas Greco, TRADOC DCS, G-2*

MAD SCIENTIST 2018

Bio-Convergence and the Soldier 2050

March 8th and 9th, 2018

SRI International

Menlo Park, CA

INVITED SPEAKERS

Dr. William A. Jeffrey

Chief Executive Officer

SRI International

William Jeffrey, Ph.D., is chief executive officer of SRI International, a leading research and development organization serving government and industry. Jeffrey joined SRI in 2014. From 2008 to 2014, Jeffrey was president and CEO of HRL Laboratories, a corporate R&D organization owned by The Boeing Company and General Motors.

Prior to joining HRL, Jeffrey served in the George W. Bush Administration as director of the National Institute of Standards and Technology (NIST). Jeffrey also served in the Executive Office of the President as senior director for homeland and national security and as assistant director for space and aeronautics within the Office of Science and Technology Policy (OSTP).

Earlier in his career, Jeffrey was deputy director for the Advanced Technology Office and chief scientist for the Tactical Technology Office at the Defense Advanced Research Projects Agency (DARPA), and assistant deputy for technology at the Defense Airborne Reconnaissance Office. Jeffrey started his professional career at the Institute for Defense Analyses (IDA).

Jeffrey is an elected Fellow of the American Physical Society, an elected Honorary Member of the International Society of Automation, a recipient of the 2008 Navigator Award from the Potomac Institute for Policy Studies, and a recipient of the Secretary of Defense Medal for Outstanding Public Service.

Jeffrey serves on the board of TE Connectivity, and serves on the Office of Director of National Intelligence (ODNI) Technical Advisory Board. He is also on the Lawrence Livermore National Lab External Review Committee.

Jeffrey received his M.A. and Ph.D. in astronomy from Harvard University, and his B.Sc. in physics is from MIT.

Mr. Peter Kant

Vice President, Federal Partnerships

SRI International

Peter Kant is Vice President, Federal Partnerships at SRI International. In his role he leads SRI overall strategy and relationships in support of all federal government programs and activities. In his role, Mr. Kant works with numerous federal agencies and SRI's all of SRI's multiple centers and labs covering Advanced Technology, Engineering and Robotics , Biosciences, Education Policy, Information and Computing Systems.

Mr. Kant also leads SRI's Center for Innovation Strategy and Policy. The Washington, D.C.-based Center helps clients around the world develop innovation ecosystem, advance innovation in government, evaluate complex policy programs and accelerate technology transition to market. Mr. Kant has extensive expertise in leading large public and private sector organizations to establish and implement successful strategies throughout the enterprise, and deep knowledge of U.S. federal sector.

Prior to joining SRI in 2014, Mr. Kant served as Executive Vice President at OSI Systems, Inc, a publicly-traded security and medical technology manufacturing firm. Over his 10 year career at OSI, he held multiple positions including, leading the International Division, leading the US Division and he also held senior roles in global government affairs and business development. Mr. Kant also served as an appointee in the Clinton Administration and held staff positions in the U.S. congress and the Texas House of Representatives. Mr. Kant has a B.A. degree in politics and economics from Brandeis University and a Masters of Public Policy from Duke University

Mr. Kidd was selected to join the White House staff in July of 2016 where he was responsible for standing up a new Federal entity, the Federal Permitting Improvement Steering Council (FPISC). He served as that entity's first Executive Director before once again returning to the Army in January of 2017.

Mr. Brynt Parmeter

Civilian Aide to the Secretary of the Army for California (Silicon Valley)

Brynt has a diverse background in both the public and private sectors. In addition to leading the Workforce Development, Education, and Training functions for NextFlex, he also serves as a Science and Technology Policy Fellow for the Department of the Energy's Advanced Manufacturing Office, is the Co-Founder and Head of Business Development for WorkScouts, a technology platform designed to connect transitioning service members and veterans with education and employment opportunities in advanced manufacturing, and is a Partner with BMNT, a Palo Alto, CA based company focused on solving national security problems through the application of Lean Startup principles. Prior to these roles, Brynt served nearly 25 years as an Infantry Officer in the U.S. Army rising to the rank of colonel. Throughout his time in uniform he served in numerous operations, training, leader development, strategic planning, and talent management roles in both peacetime and combat and within a wide variety of organizations throughout the United States, Europe, Asia, and the Middle East. He holds a BS in Systems Engineering from the U.S. Military Academy at West Point, NY, several master’s degrees from Louisiana State University and the US Army War College respectively, and a graduate level certificate in Business and Entrepreneurship from Stanford University.

Dr. Greg Kovacs

President, SRI Biosciences, SRI International

Greg Kovacs is president of SRI Biosciences, where he leads a team of 80 scientists to partner with organizations worldwide to bring new medicines and devices to market through basic research, pharmaceutical discovery, preclinical development and clinical translation.

Kovacs has extensive expertise in academics, entrepreneurship and government service.

In the 25 years before joining SRI, Kovacs was on the faculty of Stanford University, where he was a Professor of Electrical Engineering, and by courtesy, Medicine (Cardiovascular Division). He co-founded the Bioengineering Department at Stanford in 2002 and led development of the core curriculum for Bioengineering graduate students. His areas of research span a wide array of biomedical topics, including the development of non-invasive instrumentation for biomedical, aerospace, and biotechnology applications; miniaturized sensors, actuators and fluidic systems; analog circuits; systems for physiological signal analysis; cell-based systems for drug discovery; and testing of stem-cell cardiac therapies.

For more than 30 years, Kovacs has been active in technology development and entrepreneurship. In 1984, he was on the founding team of Postech (later Squirrel Systems), which then launched the first touch-screen-based point-of-sale system for the hospitality industry and is still going strong. In 1996, he co-founded Cepheid, a molecular diagnostics company that develops molecular tests and systems for organisms and genetic-based diseases, presently shipping more than 20 million assays per year. More recently, he founded PhysioWave, which develops non-invasive cardiovascular risk assessment devices.

Kovacs has a long history of government service. He made significant contributions at Defense Advanced Research Projects Agency (DARPA), serving as the Director of their Microelectronics Technology Office from 2008 through 2010. In 2003 he was the Investigation Scientist at the Kennedy Space Center for the space shuttle Columbia Accident Investigation Board, carrying out forensic analysis of recovered debris to understand the accident. He later served as Engineering/Medical Liaison on the Spacecraft Crew Survival Integration Investigation Team. He has also carried out extensive high altitude and reduced-gravity physiologic research in collaboration with National Aeronautics and Space Administration (NASA).

Kovacs holds an M.D. degree and a Ph.D. degree in Electrical Engineering from Stanford University, an M.S. degree in Bioengineering from the University of California, Berkeley and a B.A.Sc. degree in Electrical Engineering from the University of British Columbia. He is a Fellow of the Institute of Electrical and Electronics Engineers and also of the American Institute for Medical and Biological Engineering.

He has authored more than 180 scientific publications, one textbook, and has more than 50 issued patents.

He is a private pilot, scuba diver and a Fellow National of the Explorers Club. He was a member of a team sponsored by NASA and the National Geographic Society that climbed the nearly 20,000-foot Licancabur volcano on the border between Chile and Bolivia in 2003 and again in 2004 to conduct high-altitude medical research and underwater videography in the summit lake. He has also climbed several other peaks in the U.S., Spain, Iceland, Japan, and Africa.

Dr. Amy Kruse

Chief Scientific Officer

Platypus Institute

Dr. Amy Kruse is the Chief Scientific Officer of the Platypus Institute, an applied neuroscience research organization that translates cutting-edge neuroscience discoveries into practical tools and programs which enhance the human experience.

Dr. Kruse's primary focus at the Platypus Institute is a project entitled "Human 2.0" – a multi-faceted initiative that helps selected individuals and teams leverage neurotechnology to generate meaningful competitive advantages. Her ultimate goal with the Human 2.0 project is to create a vibrant, widespread neurotechnology industry that allows humanity to upgrade the human brain and, thereby, the human condition.

Before joining the Platypus Institute, Dr. Kruse served as the Vice President and Chief Technology Officer of Cubic Global Defense, where she oversaw the company's research and development (R&D) programs. Her efforts at Cubic dramatically accelerated and enhanced the company's R&D capabilities, which in turn yielded an expanded product portfolio and increased sales.

Prior to her work at Cubic, Dr. Kruse served as a government civilian program manager at the Defense Advanced Research Projects Agency (DARPA). Her efforts at DARPA generated scientific breakthroughs in areas including augmented cognition, accelerated learning, cognitive enhancement, team neurodynamics, and brain stimulation, and they resulted in the creation of multiple programs that measurably enhanced both individual and team performance in several branches of the US military.

Amy is a member of several defense panels and advisory boards for organizations including the National Academies, the Defense Science Board and DARPA. She is also the author of numerous scientific papers, chapters, and articles.

Dr. Kruse earned a Bachelor of Science in Cell and Structural Biology and a PhD in Neuroscience from the University of Illinois at Champaign-Urbana, where she was awarded a National Science Foundation Graduate Fellowship.

Dr. Seth Putterman

Professor of Physics and Astronomy
University of California Los Angeles

Seth Putterman is Professor of Physics and Astronomy at the University of California, Los Angeles. He received a BS from Caltech and a PhD from the Rockefeller University where he was a student of George E. Uhlenbeck. Putterman's thesis on the macroscopic theory of superfluids was expanded into a monograph which enjoyed wide circulation in the low temperature physics community. His research in nonlinear fluid mechanics and acoustics led to the theory of universal power spectra in wave turbulence, various new sound waves in superfluid helium and the discovery of kink and envelope solitons in various elastic media. His recent work is responsible for renewed interest in energy-focusing phenomena and their relationship to sonoluminescence, friction, X-ray emission from triboelectrification, and crystal-generated nuclear fusion. Putterman also developed the fundamental quantum mechanical theory of intermittency in the fluorescence of a single trapped ion. He is a Fellow of the Acoustical Society of America and the American Physical Society and a past recipient of an Alfred P. Sloan Fellowship. Putterman is regularly invited to give plenary presentations and colloquia at leading universities. Seth Putterman was named the UCLA 2010–2011 Faculty Research Lecturer. Nature profiled his out of the mainstream approach to science in their October 2005 issue.

Andrew Herr

Chief Executive Officer
Helicase

Andrew Herr is the CEO of Helicase, where he directs a team leveraging cutting-edge science and technology to enhance mental and physical performance. His newest project is still in stealth mode, but stay tuned for its launch later this year.

Over the past decade, Andrew has led sensitive military strategy projects to capitalize on the future of human performance, groundbreaking research and development programs, and projects to enhance elite performers in the most challenging conditions on earth. Navy SEALs on Helicase programs report that they've never performed better on deployment, and pilots rave about flying half-way around the world with no jet lag.

This background has made Andrew a trusted adviser to the U.S. military, National Institutes of Health, professional sports teams, and leading corporations from tech to finance. He is regularly invited to speak about performance enhancement from board rooms to elite scientific institutions, and his work has been profiled and published by Wired, Joint Force Quarterly, Defense News, and others. He also serves as an Adjunct Professor at Georgetown University, where he leads courses and research on emerging technology.

Andrew has been selected as a Fellow by the Synthetic Biology Leadership Excellence Accelerator Program, a Fellow by the Emerging Leaders in Biosecurity Initiative, a Leader of Tomorrow by Global Biotech Revolution, a Next Generation Fellow by the Center for a New American Security, and a Science & Technology Fellow by the U.S. Department of Homeland Security. He also regularly judges at iGEM, the International Genetically Engineered Machine Competition.

Andrew received Master's Degrees in Health Physics, Microbiology & Immunology, and Security Studies from Georgetown University, where he also completed his undergraduate work in the School of Foreign Service, earned a certificate in Eurasian, Russian, and East European studies, and learned to speak Russian. Andrew's interest in Russia and the former Soviet space led him to study in Russia, travel more than 10,000 miles across the country by train, live with Kazakh nomads who train eagles to hunt, and enjoy roasted lamb in the Turkmen desert.

Stephanie Larson

Space, Missiles, and Forces Intelligence Group

National Air and Space Intelligence Center (NASIC)

Ms. Stephanie Larson is a disruptive technology biological materials analyst for the Emerging and Disruptive Technologies Flight, Future Threats Analysis Squadron, Space, Missiles, and Forces Intelligence Group, National Air and Space Intelligence Center (NASIC), Wright-Patterson AFB, OH.

Ms. Larson joined the Air Force Civil Service in February 2017. She is currently on loan to the Air Force Research Labs, initially contributing to biomarker detection research efforts in the Materials and Manufacturing Directorate. In September 2017, Ms. Larson transferred to the 711th Human Performance Wing to support similar research in biomarker sensing element selection

Prior to joining civil service, Ms. Larson attended Wright State University, where she obtained her Bachelor of Science in Biomedical Engineering in 2015. She continued her education at Wright State University and earned her Master of Science in Biomedical Engineering in late 2016 following the completion of her thesis, in which cancellous bone growth was mathematically modeled using fractal-based equations for better material selection in implantable joints.

Zarah Ahmad

Space, Missiles, and Forces Intelligence Group

National Air and Space Intelligence Center (NASIC)

Ms. Zarah Ahmad is a disruptive technology information science analyst for the Emerging and Disruptive Technologies Flight, Future Threats Analysis Squadron, Space, Missiles, and Forces Intelligence Group, National Air and Space Intelligence Center (NASIC), Wright-Patterson AFB, OH.

Ms. Ahmad joined the Air Force Civil Service in April of 2012. Her first assignment with NASIC was a Research and Development analyst with the Persistent Infrared Squadron. She joined the Disruptive Technologies Flight in May of 2016. She is currently on loan to the Air Force Research Labs at the 711th Human Performance Wing to support research in biomarker sensing element selection.

Prior to joining civil service, Ms. Ahmad attended Southeast Missouri State University, where she obtained her Bachelor of Science in Physics. As an undergraduate Ms. Ahmad was a participant in the National Science Foundation Research Experience for Undergraduates (NSF REU). While participating in the program Ms. Ahmad conducted research in the area of muon detector construction for Brookhaven National Labs and focal plan characterization for Large Synoptic Survey Telescope.

Dr. Michael Miller

Professor and Vice Chair
University of California Santa Barbara, Psychological & Brain Sciences

Dr. Miller received his BA in Psychology from San Francisco State University in 1994. He then began his doctoral training in Neuroscience at the University of California, Davis where he won the Achievement Award for College Scientists. After joining the lab of Dr. Michael Gazzaniga, he transfered to Dartmouth College, where he received his Ph.D. in Cognitive Neuroscience in 1998. In 1999, he became an assistant professor at the Department of Psychological & Brain sciences at the University of Massachusetts Boston. In 2002, he joined the faculty at UCSB. His publications studying the cognitive neuroscience of human memory, decision-making, and individual differences have utilized various techniques including functional magnetic resonance imaging, transcranial magnetic stimulation, patient testing, and signal detection analysis. Professor Miller is the vice director of the Sage Center for the Study of the Mind and editor of The Year in Cognitive Neuroscience, an annual review published by the New York Academy of Sciences.

Dr. Miller is interested in the psychological and neural processes underlying human memory and decision-making. His research employs a variety of techniques, including functional magnetic resonance imaging (fMRI), event-related potentials (ERP), transcranial magnetic stimulation (TMS), split-brain studies, and signal detection analysis. These studies range from investigations into prefrontal and parietal cortex activity associated with shifts in decision criteria to attempts to uncover the functions of the parietal lobe during successful retrieval. A major component of our research examines the sources variability of individual patterns of brain activity during an episodic memory task. Ultimately, our goal is to use these neuroscientific studies to understand the processes of the mind when remembering a past event, and to appreciate the uniqueness of these processes at the individual level.

Mr. Kettner Griswold

Hertz-Draper Research Fellow, George Church Lab & Edward Boyden Lab, Harvard University

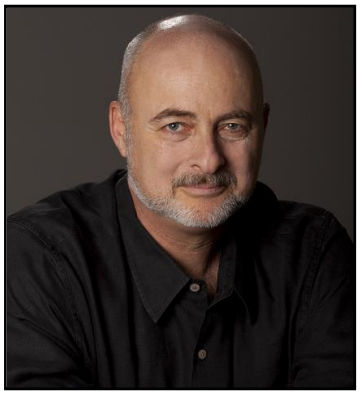
Kettner Griswold Jr. is a research fellow at the George Church Lab at Harvard Medical School, and a research affiliate at the Ed Boyden Lab at MIT. His current work focuses on developing new tools and methods in synthetic biology, such as new ways to scale de novo DNA Synthesis, and library-on-library interaction profiling and evolution strategies. As a Hertz-Draper Fellow, he will pursue his PhD at the MIT Media Lab under the joint guidance of George Church and Hertz Fellow Ed Boyden.

In 2015, Kettner was named an Emerging Leaders in Biosecurity Fellow by the UPMC Center for Health Security and advised on dual use issues in synthetic biology. Additionally, as a Hertz-Draper Fellow at the Charles Stark Draper Laboratory, he will develop new tools to address problems in the field.

In his sophomore year at the Georgia Institute of Technology (Georgia Tech), Kettner and his roommate Paul Sebexen were awarded Thiel Fellowships, and left Georgia Tech to co-found Evolutionary Solutions, a biotechnology startup developing a novel error-checked long-write DNA synthesis technology for rapid, cheap development cycles in synthetic biology. During the Thiel Fellowship, Kettner was a research affiliate at Lawrence Berkeley National Laboratory, where most of the technology development for Evolutionary Solutions was performed.

Prior to leaving Georgia Tech, Kettner was a material science and engineering major, with a biomaterials concentration. While at Georgia Tech, he led an iGEM team in 2011 developing a conjugating CRISPR-CAS plasmid as a strategy to counter antimicrobial resistance. Prior to college, he performed independent research within the J. Craig Venter Institute's Synthetic Biology department.

Kettner is from Bethesda, Maryland.



Dr. David Brin

Science Fiction Author and Futurist

David Brin is a scientist, inventor, and New York Times bestselling author. With books translated into 25 languages, he has won multiple Hugo, Nebula, and other awards. A film directed by Kevin Costner was based on David's novel The Postman, with other works under option. David's science-fictional Uplift Saga explores genetic engineering of higher animals, like dolphins, to speak and join our civilization. In EARTH and EXISTENCE he explores near future trends that may transform our world.

As a scientist/futurist, David is seen frequently on television shows such as The ArchiTechs, Universe, and Life After People, with frequent appearances on PBS, BBC and NPR. He has consulted for original shows like Ascension, Seven Days and Century City.

A patent-holding inventor, he is in-demand to speak about future trends, keynoting for IBM, GE, Google, Procter & Gamble, SAP, Microsoft, Qualcomm, the Mauldin Group, and Mitre Research, all the way to think tanks, public agencies, intelligence services and the White House. (http://www.davidbrin.com/speaker.html)

With degrees from Caltech and the University of California-San Diego, Dr. Brin serves on advisory panels ranging from astronomy and NASA's Innovative & Advanced Concepts program (NIAC) to others dealing with artificial intelligence, nanotech, SETI, national defense to technological ethics. His nonfiction book The Transparent Society: Will Technology Make Us Choose Between Privacy and Freedom? explores the dangers of secrecy and loss of privacy in our modern world. It garnered the prestigious Freedom of Speech Prize from the American Library Association. http://www.davidbrin.com

Dr. Philip Perconti

Director, U.S. Army Research Laboratory

Dr. Philip Perconti is a member of the Senior Executive Service and serves as the Acting Director of the U.S. Army Research Laboratory (ARL), the Army's premier laboratory for basic and applied research and analysis. ARL conducts research and analysis in weapons and materials, sensors and electron devices, computational and information sciences, human research and engineering, vehicle technology, and survivability and lethality analysis. ARL's Army Research Office executes the Army extramural basic research program in scientific and engineering disciplines. The Laboratory consists of approximately 2,000 civilian and military employees with an annual budget of over $1 billion.

Prior to this, Dr. Perconti served as the Director of the Sensors & Electron Devices Directorate of the ARL. He was responsible for leading and transitioning the Army's primary basic and applied research programs in sensors, electronics, sensor information processing, and power and energy technologies. In addition, he led ARL's S&T campaign for Materials Research. His duties included operation of unique electronics and photonics materials fabrication and characterization facilities that enable world-class, Army-relevant, component research and development. He was also responsible for planning, executing and balancing mission and customer program needs to ensure science and technology dominance for the Army.

Dr. Perconti has a Doctorate in Science in Electrical and Computer Engineering from The George Washington University. He has published extensively on many aspects of military sensing and countermine/counter IED technology; and has authored and co-authored over 50 publications, including three book chapters. He holds two patents.

BG David P. Komar

Director, Capabilities Developments Directorate, Army Capabilities Integration Center (ARCIC), TRADOC

Brigadier General David P. Komar was commissioned as a Field Artillery Officer through ROTC at Lafayette College, Easton, Pennsylvania. As a Lieutenant, he served as a Platoon Fire Direction Officer, Platoon Leader and Fire Support Officer with the 3rd Battalion, 5th Field Artillery Battalion and the 2nd Armored Cavalry Regiment, in Germany and during OPERATION DESERT SHIELD and OPERATION DESERT STORM.

After returning to Germany, he was the Brigade Adjutant for the 210th Field Artillery Brigade. Following the Field Artillery Advanced Course, he served with 3rd Battalion, 7th Field Artillery, 25th Infantry Division (Light). During this time, he was the Battalion Fire Direction Officer, a Firing Battery Commander, and a Brigade Fire Support Officer. BG David P. Komar then commanded two more Field Artillery Batteries before serving as the Force Structure and Readiness Analyst in the Army Program Analysis and Evaluation Directorate, Office of the Chief of Staff of the Army. He was then assigned to the Army Capabilities Integration Center's Force Design Directorate. During most of this assignment, he was the Deputy Chief of Staff and Chief of Force Design for the Chief of Staff, Army's TF MODULARITY. BG Komar then became the Force Integration Branch Chief in the Deputy Chief of Staff of the Army G-37 followed by service in the Deputy Chief of Staff of the Army G-8, Force Development as the Chief of Army Equipping Plans and Policy. Later, BG Komar deployed as the Director, CJ7, NATO Training Mission - Afghanistan and Combined Security Transition Command – Afghanistan during OPERATION ENDURING FREEDOM. He then served as Director, Capabilities Development Integration Directorate, Mission Command Center of Excellence at Fort Leavenworth, Kansas. His most recent assignment was as the Director, Business Operations Directorate, Office of Business Transformation at the Pentagon.

BG Komar graduated from the Air Command and Staff College and the Naval War College. He earned Master's Degrees in National Security and Strategic Studies from the Naval War College, Military Operational Arts and Science from the Air University and in Management from Webster University.

Mr. Howard Simkin

Senior Concept Developer

U.S .Army Special Operations Command G-9

Howard R. Simkin is a Senior Concept Developer in the DCS, G-9 Concepts, Experimentation and Analysis Directorate, U.S. Army Special Operations Command. He has over 40 years of combined military, law enforcement, defense contractor, and government experience. He is a retired Special Forces officer with a wide variety of special operations experience. Within the G9 he analyzes and defines the future operating environment and required capabilities Army Special Operations Forces (ARSOF) in support of future concepts development. His subject matter expertise includes analyzing and evaluating historical, current and emerging technology as well as Combined, Joint, Multi-Service, Army and ARSOF organizational initiatives, trends, and concepts to determine the implications for ARSOF units. Mr. Simkin holds a Masters of Administrative Science from the Johns Hopkins University and is a certified Project Management Professional.

Dr. Megan Palmer

Center for International Security and Cooperation (CISAC), Stanford University

Dr. Megan J. Palmer is a Senior Research Scholar at the Center for International Security and Cooperation (CISAC) at Stanford University. She leads a research and practice program on risk governance in emerging technology development, with a focus on how security is conceived and managed as biotechnology becomes increasing accessible. Her current projects focus on assessing strategies for governing dual use research, analyzing the international diffusion of safety norms and practices, and the understanding the security implications of alternative technology design decisions.

Previously, Dr. Palmer spent 5 years directing the policy-related research program for the Synthetic Biology Engineering Research Center (Synberc), a multi-university research center in synthetic biology. Within Synberc, she led and contributed to projects in safety and security, property rights, and community organization and governance. She has also held positions as the William J. Perry Fellow in International Security at CISAC, a research scientist at the California Center for Quantitative Bioscience at the University of California Berkeley (where she was also an affiliate of Lawrence Berkeley National Labs), and a postdoctoral scholar in the Bioengineering Department at Stanford University (when she first became a CISAC affiliate).

Dr. Palmer has created and led many programs aimed at developing and promoting best practices and policies for the responsible development of biotechnology. She founded and serves as Executive Director of the Synthetic Biology Leadership Excellence Accelerator Program (LEAP), an international fellowship program in biotechnology leadership. She also leads programs in safety and responsible innovation for the international Genetically Engineered Machine (iGEM) competition, which last year involved over 5000 students in 300 teams from 42 countries. Dr. Palmer also advises a diversity of organizations on their approach to policy issues in biotechnology, including serving on the board of the synthetic biology program of the Joint Genomics Institute (JGI).

Dr. Palmer holds a Ph.D. in Biological Engineering from MIT and a B.Sc.E. in Engineering Chemistry from Queen’s University, Canada.

Ms. Elsa Kania

Adjunct Fellow

Technology and National Security Program

Center for a New American Security

Elsa B. Kania is an Adjunct Fellow with the Technology and National Security Program at the Center for a New American Security, where she focuses on Chinese defense innovation and emerging technologies, particularly artificial intelligence. Her research interests also include Chinese military modernization, information warfare, and defense science and technology. She is an independent analyst, consultant, and co-founder of the China Cyber and Intelligence Studies Institute (CCISI), which seeks to become the premier venue for analysis and insights on China's use of cyber and intelligence capabilities as instruments of national power. Elsa has testified before the U.S.-China Economic and Security Review Commission on Chinese advances in unmanned and autonomous systems. She regularly contributes to China Brief, Lawfare, Strategy Bridge, and The Diplomat, among other publications. Her prior professional experience includes working at the Department of Defense, the Long Term Strategy Group, FireEye, Inc., and the Carnegie-Tsinghua Center for Global Policy.

Elsa is a graduate of Harvard College (summa cum laude, Phi Beta Kappa), where her thesis on the evolution of the PLA's strategic thinking on information warfare was awarded the James Gordon Bennett Prize. While at Harvard, she worked as a research assistant at the Belfer Center for Science and International Affairs and the Weatherhead Center for International Affairs. Elsa was a 2014–2015 Boren Scholar in Beijing, China, and she is fluent in Mandarin Chinese.

COL Wendy Sammons-Jackson

Military Deputy to the Principal Assistant for Research and Technology

U.S. Army Medical Research and Materiel Command

Wendy is currently serving as the Military Deputy to the Principal Assistant for Research and Technology, US Army Medical Research and Materiel Command, Fort Detrick, MD. She began her career in the Army in 1994 as a 2nd Lieutenant, commissioned through ROTC at University of Delaware and Salisbury University, MD. As an American Society of Clinical Pathologists (ASCP) certified medical technologist, she entered active duty in the Medical Service Corps, serving in a number of operational and clinical assignments in Germany, Bosnia, Fort Bragg, Fort Detrick and Iraq. Upon her return from Iraq in 2003, she spent the next four years at the University of South Florida, Tampa, FL, obtaining her Ph.D. in Medical Microbiology through the Army's Long Term Health Education and Training program. This career path change took her back to Fort Detrick, completing a utilization tour at the US Army Medical Research Institute of Infectious Diseases. Prior to her current assignment, she served as the Military Deputy for the Military Infectious Diseases Research Program and earned the Level 3 Science and Technology Management Certification. She holds the Army Medicine's "A" Proficiency Designator, in recognition of the highest level of professional achievement within Army Medicine and was awarded membership into the Order of Military Medical Merit. Other military awards include the Bronze Star Medal, Meritorious Service and Army Commendation Medals, Expert Field Medical Badge, Parachutist Badge and operational medals for her service in NATO missions, Operation Iraqi Freedom and the Global War on Terrorism.

Wendy is married to Colonel Rich Jackson, US Army Special Forces, and they have two boys, Reed (10) and Sawyer (9).

Dr. Elizabeth Mezzacappa

U.S. Army RDECOM-ARDEC Tactical Behavior Research Laboratory (TBRL)

Dr. Elizabeth Mezzacappa is a scientist at the Tactical Behavior Research Laboratory (TBRL) at the Armament Research, Development, and Engineering Center (ARDEC) and an Assistant Professor at the Army's Armament Graduate School. Her research interests include human domain and human dimension areas relevant to military operations. She received her PhD in Medical Psychology from the Uniformed Services University of the Health Sciences.

As Principal Investigator, she has led or assisted teams in the design, preparation for, and execution and analysis of over three dozen studies and experiments. Dr. Mezzacappa also has served on several local and national boards relevant to behavioral sciences in the military. Prior to her work at the TBRL, Dr. Mezzacappa was on the research faculty or staff at Columbia University, the New Jersey Medical School, and SUNY Stony Brook with funding from NASA, NIH, NIMH, and NSF. She utilized many diverse methods of experimental social psychology, psychophysiology, endocrine assay, online and traditional survey methods, and fMRI neuroimaging techniques.

Dr. Mezzacappa, together with her lab, has won two Army Research and Development Achievement Awards (2012. 2013), and a Best Paper Award at the 26th Army Science Conference.

Dr. Tien Pham

Senior Campaign Scientist for the Information Sciences Campaign

Army Research Lab (ARL)

Dr. Pham is responsible for the planning, direction, management, and oversight of very complex theoretical and applied research and development (R&D) programs associated with sensing and effecting, system intelligence and intelligent systems, human and information interaction, network and communications, and cyber security. He serves as the scientific ambassador and advisor for information sciences to top-level administrative and technical management officials within the ARL, Army, Department of Defense (DoD), other Government agencies, and outside organizations from academia and industry. He also serves as the Coordinator for the Artificial Intelligence and Machine Learning (AI & ML) Essential Research Area (ERA) at ARL. Dr. Pham has over 25 years of R&D experience and 15 years of research project and program management experience in network & information sciences, data & information fusion and processing, networked sensing, multi-modal sensing and acoustics. He has published over 100 papers, journals and technical reports.

Dr. Timothy J Broderick

Senior Advisor, SRI Biosciences

SRI International

Dr. Broderick is a surgeon and biomedical engineer focused on the development of high impact technologies that revolutionize health and human performance. He currently serves as Senior Advisor, SRI Biosciences as well as Chief Science Officer, Wright State Research Institute and Associate Dean for Research Affairs, Wright State University Boonshoft School of Medicine.

Dr. Broderick's team performs cutting-edge research focused on precision health and performance in military environments. He leads the Office of Naval Research Multidisciplinary University Research Initiative (MURI) Precision High Intensity Training through Epigenetics (PHITE) project and the Defense Advanced Research Projects Agency (DARPA) Learning through Electrical Augmentation of Plasticity (LEAP) project.

Prior to coming to Wright State University, Dr. Broderick served as a Program Manager at DARPA. Over 4 years, he built a diverse advanced biotechnology R&D portfolio of approximately $90 million per year. He conceived and established five high impact biotechnology programs that led to basic scientific discovery as well as innovative technology application. In the In Vivo Nanoplatforms program, Dr. Broderick developed safe, biocompatible nanoplatforms that enabled in vivo diagnostics as well as targeted delivery of biologic therapeutics. Modular therapeutic nanotechnologies permitted flexible targeting of tissues for improved treatment of diseases such as antibiotic-resistant bacterial infection and traumatic brain injury. Leveraging commercial investment, performers demonstrated isoform-specific knockdown of cognitive epigenetic regulators.

Dr. Broderick also served as Senior Scientist at the US Army Medical Research and Materiel Command Telemedicine and Advanced Technology Research Center. In this role, he contributed to the development of biomedical technologies including medical informatics, simulation and robotic systems.

Dr. Broderick productively engages with elite warfighters and Department of Defense scientists who manage human performance research portfolios.

Dr. Michael Snyder

Director, Center for Genomics and Personalized Medicine

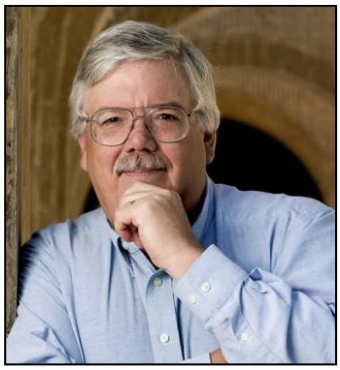
Stanford University

Michael Snyder is the Stanford Ascherman Professor and Chair of Genetics and the Director of the Center of Genomics and Personalized Medicine. Dr. Snyder received his Ph.D. training at the California Institute of Technology and carried out postdoctoral training at Stanford University. He is a leader in the field of functional genomics and proteomics, and one of the major participants of the ENCODE project. His laboratory study was the first to perform a large-scale functional genomics project in any organism, and has developed many technologies in genomics and proteomics. These including the development of proteome chips, high resolution tiling arrays for the entire human genome, methods for global mapping of transcription factor binding sites (ChIP-chip now replaced by ChIP-seq), paired end sequencing for mapping of structural variation in eukaryotes, de novo genome sequencing of genomes using high throughput technologies and RNA-Seq. These technologies have been used for characterizing genomes, proteomes and regulatory networks. Seminal findings from the Snyder laboratory include the discovery that much more of the human genome is transcribed and contains regulatory information than was previously appreciated, and a high diversity of transcription factor binding occurs both between and within species. He has also combined different state-of–the-art “omics” technologies to perform the first longitudinal detailed integrative personal omics profile (iPOP) of person and used this to assess disease risk and monitor disease states for personalized medicine. He is a cofounder of several biotechnology companies, including Protometrix (now part of Life Technologies), Affomix (now part of Illumina), Excelix, and Personalis, Q Bio and he presently serves on the board of a number of companies.

Mr. Jason Marsh

Director of Technology, NextFlex

As NextFlex director of technology, Mr. Marsh is responsible for setting the Institute's technical direction, including managing Technical Council activities. Previously, he worked in Japan, India, Germany, Mexico, Malaysia, and China, where he lived between 2003 and 2008, establishing greenfield factories for Kyocera. As vice president at Insulectro, Mr. Marsh focused on new materials and supply-chain strategies for the printed circuit board and flexible hybrid electronics industries, focusing on high-reliability applications. Mr. Marsh studied materials science and robotics at Stanford University, and worked on early versions of 3D printing using ceramics and metals.



Mr. Hank Greely

Deane F. and Kate Edelman Johnson Professor of Law and, Professor, by courtesy, of Genetics

Standford Law School

Henry T. Greely (BA ’74) specializes in the ethical, legal, and social implications of new biomedical technologies, particularly those related to neuroscience, genetics, or stem cell research. He frequently serves as an advisor on California, national, and international policy issues. He is chair of California’s Human Stem Cell Research Advisory Committee, a member of the Advisory Council of the NIH’s National Institute for General Medical Sciences, a member of the Committee on Science, Technology, and Law of the National Academies, a member of the Neuroscience Forum of the Institute of Medicine, and served from 2007-2010 as co-director of the Law and Neuroscience Project, funded by the MacArthur Foundation. Professor Greely chairs the steering committee for the Stanford Center for Biomedical Ethics and directs both the law school’s Center for Law and the Biosciences and the Stanford Program in Neuroscience and Society. In 2007 Professor Greely was elected a fellow of the American Association for the Advancement of Science.

Before joining the Stanford Law School faculty in 1985, Greely was a partner at Tuttle & Taylor, served as a staff assistant to the secretary of the U.S. Department of Energy, and as special assistant to the general counsel of the U.S. Department of Defense. He served as a law clerk to Justice Potter Stewart of the U.S. Supreme Court and to Judge John Minor Wisdom of the Court of Appeals for the Fifth Circuit.

Greely is also a professor (by courtesy) of genetics at Stanford School of Medicine. He received the University’s Richard W. Lyman Prize in 2013.

Mr. Thomas Greco

Deputy Chief of Staff, G-2

U.S. Army Training and Doctrine Command

Fort Eustis, Virginia

Mr. Thomas F. Greco serves as the Director of Intelligence, Deputy Chief of Staff, G-2 for the U.S. Army Training and Doctrine Command (TRADOC G2). This is a Tier Two Defense Intelligence Senior Executive Service (DISES) position. He is the Army's lead for developing, defining, and applying current and future threats and environments in support of Army leader development, concept development, capability design, training readiness, and experimentation. He also leads the Army's enterprises for Critical Thinking, Foreign Military and Cultural Studies, and the OE Training Support Center. TRADOC G2 supports the Army's Combat Training Centers, deployed forces in Afghanistan, all of the Army's educational institutions and capability development and integration activities. He is responsible for managing a staff of more than 500 employees, acts as the program manager for the TRADOC civilian intelligence career field and oversees a budget in excess of $250 million.